Testimony of

Julius P. Knapp

Deputy Chief, Office of Engineering and Technology
Federal Communications Commission

Before

The U.S. Senate
Committee on Commerce, Science and Transportation
Subcommittee on Communications

Tuesday, July 31, 2001

2:30 p.m.

Room 253 Russell Senate Office Building
Washington, D.C.

Mr. Chairman, Ranking Member, and Members of the Subcommittee:

Good morning. I am Julius Knapp, Deputy Chief of the Office of Engineering and Technology at the Federal Communications Commission (FCC). I welcome this opportunity to discuss spectrum management issues, and focus on allocations for advanced wireless service, or so-called third generation (3G) mobile radio services.

Unfortunately, Chairman Michael Powell could not be here today, but he is cognizant of the importance of spectrum management and its role in the future of America. Spectrum management long has been one of the FCC's core responsibilities. We recognize that effective spectrum management is vital to America's national security, as well as our public safety needs, and to ensure the growth of our economy.

The Commission throughout its history has met the challenge of demands for spectrum that exceed the available supply. This challenge is even greater today as we look for ways to accommodate a growing number of new services and technologies in a finite amount of spectrum.

As spectrum usage has grown, so too have the problems of reallocating spectrum for new uses and developing standards to avoid interference. The Commission must maintain its ability to form independent judgments on these technical issues so that we can make the best use of the spectrum.

The Commission recognizes that effective spectrum management also relies on the development of polices that encourage efficient use of spectrum and provides licensees with the flexibility to best meet consumers needs. We continue to develop a wide variety of spectrum management tools to ensure the availability of spectrum for the rapid deployment of new and innovative technologies, as well as promoting spectrum efficiency.

One of the most important emerging technologies is 3G Wireless or advanced wireless communications services. The regulatory challenges inherent in ensuring the rapid deployment of this service require teamwork on a national scale, as well as attention to the most basic principles of spectrum management. It is crucial that we provide the essential ingredients for success in the marketplace for advanced wireless services - adequate spectrum capacity, and an open, competitive de-regulatory environment. In order to accomplish these goals, we must work together as a nation to ensure a cooperative atmosphere and unified voice. The Commission is dedicated to working with the industry, other agencies, as well as Congress to find and deploy the most suitable spectrum. Today's hearing is an important step toward encouraging the development of shared goals and perspectives – both for spectrum management in general and 3G in particular, and we welcome the opportunity to testify here today.

INTRODUCTION

Commercial mobile radio services have experienced unprecedented strong growth, particularly in the past several years. In the twelve months ending December 2000, the mobile

telephony sector generated over $52.5 billion in revenues and subscribership increased from approximately 86 million to 110 million users.

The first wireless phones, introduced in the 1980s, used analog technology and offered only voice service. The second generation of wireless phones, introduced in the mid-1990s, use digital transmission technology but still primarily offer voice services. Data services are being introduced that allow consumers to use wireless phones and other devices to provide access to the Internet, but transmission speeds are relatively slow by today's standards.

Industry has developed technology for advanced wireless services, referred to as third generation or 3G wireless, that will offer high-speed data rates that make it possible to offer a variety of new voice and advanced services. The United States has been very involved internationally in developing technical standards and identifying spectrum for 3G services.

Late last year, the FCC initiated a rulemaking to consider spectrum allocations to facilitate the introduction of advanced wireless services, such as 3G. Some of the spectrum identified internationally for 3G currently is used in the United States for Federal government communications systems. The Commission's staff has worked closely with the Department of Commerce in addressing possible spectrum allocations for 3G.

The FCC is continuing its efforts to address the spectrum requirements for 3G systems. I am pleased to report on our progress thus far.

INTERNATIONAL SPECTRUM ALLOCATIONS FOR 3G

The International Telecommunications Union (ITU) has been fostering the development of advanced wireless systems, commonly referred to as International Mobile Telecommunications-2000 (IMT-2000) or 3G systems, for a number of years. The 2000 World Radio Conference (WRC-2000) adopted Resolution 223, which states that approximately 160 MHz of additional spectrum will be needed to meet the projected requirements of IMT-2000 in those areas where traffic is highest by 2010. WRC-2000 identified a number of frequency bands for possible IMT-2000 use and provided that each country may determine which of the bands to implement domestically after taking into account the impact on incumbent services. The WRC-2000 decisions also provided that 3G services may be introduced through evolution of technology in frequency bands used by existing mobile services.

COORDINATION WITH DEPARTMENT OF COMMERCE

The frequency bands identified internationally for possible use for advanced wireless services are allocated in the United States for both Federal Government and Non-Government use and therefore fall under the spectrum management responsibilities of both the Executive Branch and the Commission. Setting the direction for the Executive Branch, a Presidential Memorandum was issued in October 2000 instructing the Secretary of Commerce to work cooperatively with the Federal Communications Commission to develop a Study Plan to select spectrum for 3G systems.

The Department of Commerce released a "Plan to Select Spectrum for Third Generation (3G) Wireless Systems in the United States" on October 20, 2000. The plan established target dates for completion of spectrum studies by the National Telecommunications and Information Administration (NTIA) and the Federal Communications Commission. The plan also called for the FCC to allocate spectrum by July 2001 and to subsequently establish rules so that spectrum can be assigned by competitive bidding by September 2002.

FCC RULEMAKING

The Commission issued a Notice of Proposed Rule Making ("Notice") in ET Docket No. 00-258 in December 2000 to identify spectrum for advanced wireless services, including third generation and future generations of wireless systems.

Service Requirements

In the Notice, the Commission sought comment on the types of advanced wireless services that will likely be provided and the technical characteristics of such systems. The Commission noted that wireless carriers in the United States employ a variety of technical standards and sought comment on how networks will migrate to new technologies and whether networks have the capacity now to provide data services. We also requested information on the projected demand and growth rates for mobile data services, the number of licensees needed to meet this demand, how to accommodate global roaming, and other issues.

Amount of Spectrum Needed

The Commission's rulemaking invited comment on the amount of spectrum required for advanced wireless services, for example, whether the 160 MHz of spectrum recommended by WRC-2000 Resolution 223 is required or whether some alternative amount is needed. The Notice states that the Commission intends to identify a flexible allocation for advanced wireless services, noting that it is not Commission policy to set aside spectrum restricted to a given technology.

Frequency Bands

The Commission asked for comment on the extent to which currently allocated spectrum might be used for advanced wireless services. This spectrum includes the frequency bands used by cellular, PCS, and specialized mobile radio services, as well as spectrum recently reallocated for commercial use from TV channels 60-69 as a result of the transition to digital television.

The Notice also invited comments on using additional candidate bands for advanced wireless systems. Three of these bands are ones that the Commission previously identified for reallocation and that the ITU identified for possible 3G use: 1710-1755 MHz, 2110-2150 MHz, and 2160-2165 MHz.

The 1710-1755 MHz band is now used by Federal Government operations and is scheduled for transfer to the private sector on a mixed-use basis by 2004.

The 2110-2150 MHz and 2160-2165 MHz bands are currently used by the private sector for fixed microwave services. The Commission identified these bands several years ago for reallocation to emerging technologies.

The Notice sought comment on whether portions of the 1755-1850 MHz band, which is now used by Federal Government operations, can be made available for advanced wireless services. Recent legislation sets certain conditions before the Department of Defense (DOD) surrenders use of a band, such as this one, in which it is a primary user. Further, Federal Government users in this spectrum would be entitled to compensation for relocation to other bands.

The Commission's rule making asked for comment on whether the 2500-2690 MHz band, which is now used for Instructional Television Fixed Service (ITFS) and Multipoint Distribution Service (MDS), can be used for advanced mobile, as well as fixed services. The proposal also asked whether we should simply add a mobile service allocation to this band or if ITFS/MDS incumbents should be relocated.

Finally, the Notice requested comment on how newly available spectrum for advanced wireless services might be paired and the importance of global harmonization.

The Commission’s staff currently is reviewing the comments received in response to this Notice as we evaluate next steps, which I will discuss in a moment.

FCC TECHNICAL REPORT

The staffs of NTIA and the FCC issued Final Reports in March reporting the results of studies for two of the frequency bands under consideration for advanced wireless systems.

The FCC staff report examines the 2500-2690 MHz band. The report explains that this spectrum is heavily occupied by existing ITFS and MDS systems. These services are experiencing and are expected to see significant future growth, particularly in the provision of new broadband fixed access to the Internet. Given the ubiquitous nature of ITFS/MDS, the report found sharing of this spectrum for 3G does not appear feasible. Further, the report found that reallocating a portion of the 2500-2690 MHz band from incumbent services for new third generation mobile wireless services would raise significant technical and economic difficulties.

REIMBURSEMENT FOR FEDERAL RELOCATION

The Strom Thurmond National Defense Authorization Act of 1999 (NDAA 99) mandates that new commercial licensees (assigned via competitive bidding) reimburse Federal government incumbents forced to relocate spectrum. The reimbursement requirement applies to the 1710-1755 MHz band that has already been identified for transfer from Federal to non-government

use. It would similarly apply to the 1755-1850 MHz band if the Federal government were to make this spectrum available for use by the private sector.

The first application of the mandatory reimbursement provisions is under consideration in a separate Commission (ET Docket 00-221) and NTIA rulemaking proceedings. The Commission's Advanced Services Notice invited comment on relocation rules and reimbursement procedures. The Commission and NTIA invited comment as to how these reimbursement rules and procedures would affect the commercial viability of Federal reallocated spectrum that may be made available for 3G. Concerns raised in the comments focused primarily on the availability of adequate information and reduced uncertainty in the process for potential licensees to develop viable bidding strategies. We are continuing to work closely with NTIA to develop reimbursement policies and procedures that are viable for Federal incumbents as well as prospective new users.

NEXT STEPS

As I mentioned, the Commission is evaluating the record in the Advanced Services Rule making to determine how to proceed. The comments filed by the wireless industry suggest that the 1710-1850 MHz band would be the preferred choice for 3G spectrum. This would partially harmonize U.S. spectrum allocations with those in use or planned internationally. Harmonization would permit economies of scale and reduce costs in manufacturing equipment, as well as facilitate international roaming.

Parts of the 1710-1850 MHz band could be used to harmonize with 2G GSM systems, which are currently used extensively throughout the world and are expected to transition eventually to 3G systems. Other parts of the 1710-1850 MHz band could be paired with the 2110-2150 MHz band to achieve partial harmonization with spectrum recently auctioned in Europe and elsewhere for 3G systems.

The Department of Commerce and the Department of Defense are continuing to evaluate whether, in addition to the 1710-1755 MHz band that has already been identified for transfer, spectrum can be made available in the 1755-1850 MHz band. They have been working closely with industry in consultation with the Commission.

The Commission staff has also been working to identify other possible non-government spectrum bands that might be reallocated for 3G or serve as relocation spectrum. These additional bands could be identified in a Further Notice of Proposed Rulemaking in the near future.

Industry, as well, has been looking at additional spectrum options. For example, the Cellular Telecommunications and Internet Association recently filed a petition with the FCC seeking to reallocate spectrum currently allocated to the mobile satellite service.

Given these developments, on June 26, 2001, FCC Chairman Powell sent a letter to Secretary of Commerce Donald Evans noting that the entire federal government faces a

challenging set of issues in addressing how best to make available sufficient spectrum for advanced wireless services. Chairman Powell stated that the public interest would be best served by additional time for informed consideration, even if this results in some delay in reaching a decision. The Chairman also acknowledged that some of the bands identified for 3G are subject to September 30, 2002 statutory auction deadlines. The Chairman offered that, together with the Executive Branch and the Congress, we can come up with a revised allocation plan and auction timetable that would enable the important work in this area to be finalized in the most effective manner.

Secretary Evans recently responded to Chairman Powell's letter and directed the Acting Administrator of the NTIA to work with the FCC to develop a new plan for the selection of 3G spectrum as quickly as possible. This effort will be carried out in close coordination with the appropriate Executive Branch entities, including the National Security Council, the National Economic Council, the Office of Management and Budget, and the Department of Defense. Secretary Evans encouraged the participants to consider ways to achieve flexibility with respect to the statutory auction dates if flexibility is needed to implement the new plan.

CONCLUSION

The Commission is committed to making spectrum available for new advanced wireless services. We will continue to work closely with the Congress, the Federal Government, the Department of Defense, the wireless industry, and other spectrum users towards that end. We must approach these issues by balancing the needs of all users through a well-managed national plan.

I would like to thank you, Mr. Chairman, for the opportunity to appear before you today. This concludes my testimony and I would be pleased to answer any questions you or the other members may have.